

# Three is a crowd? A prompt driven human-bot performance

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## 1. PROGRAM NOTES

This performance is an improvisational collaboration between a vocalist, an electronic musician, and a musical agent based on self-organizing maps from curated music corpora. The back-and-forth in this musical conversation is based around the concept of a simple algorithmic conductor that controls the conversation through generated prompts. Each element of this performance controls and is controlled by the tightly regimented constraints around making musical meaning together.

This project plays with dramaturgy. Characterization and role-playing form an important part of improvisatory practice, with dramaturgy contributing hugely to building material, intentionality, and development in improvised work. The dramaturgical algorithmic conductor instructs the improvising persons as to what affective, musical and dramatic qualities to employ in quick succession.

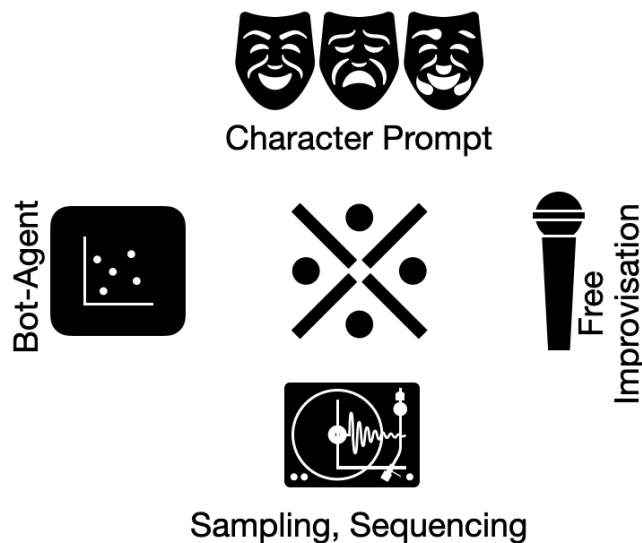


Fig. 1. Figurative representation of the performance interactions

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## 2. PROJECT DESCRIPTION

This project is a continuation of Co-Creative Spaces presented at NIME 2023 [1] and builds on both the experiences and software (CCCP<sup>1</sup>) from that project. The agents in Co-Creative Spaces generate sound by picking from a corpus of recorded material from the human musicians. Curating and putting together these musical collections was one of the most important artistic decisions for the co-creation process. On the positive side, this gave the musicians a closeness to the material, however there was a recurring wish that the agents could have their own voice to a greater extent. “Three is a crowd?” is the first step in exploring other ways of giving non-human agents more explicit agency in a performance by introducing an algorithm conductor that will guide the musical performance through text-based prompts.

When the machine's agency is given greater leeway, it becomes more important to problematize what kind of culture this agency should promote. What cultural aspects are embedded in the software? Does the artificially intelligent musician represent a monoculture, why and how can this effect be mitigated?

The technological development in Co-Creative Spaces was closely linked to our artistic needs and was an important aspect in the continuation of the project. In this project period, we saw that it was challenging to collaborate with a developer who was not artistically involved. We wanted to change this in the continuation of the project and have therefore started a collaboration with Tejaswinee Kelkar, who is both developer and performer. She researches music and movement at the University of Oslo in addition to being a performing singer with a background in classical North Indian song and western classical composition.

Diversity and bias are important current themes in music technology in general, and came up several times in the group discussions in Co-Creative Spaces. An example is the agents' perception of pitch, which relates to western twelve-tone tempered tuning, which will be less suitable for picking up microtonality - a widespread limitation in modern music technology. The software also has limited possibilities to use repetition or generate rhythmic patterns, which helps to form an implicit aesthetic that leans strongly towards avant-garde and Western art music. With the continued development of the CCCP software, we are aiming to create more expressive and culturally diverse artificial agents.

The recording of the final concert of the first round of Co-Creative Spaces can be seen and heard here: <https://www.youtube.com/watch?v=KbIC6WGlop8>

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<sup>1</sup> <https://github.com/co-creative-spaces/cccp>

A folder with 4 excerpts from a studio improvisation with the human musicians and a musical agent trained on experimental guitar sounds can be found in section 4. media links. We will also experiment with other curated corpora for the agents in the time leading up to the performance.

### 3. PERFORMANCE NOTES

The performance venue for this should be ideally a club venue where the performance can be enjoyed not in a sit-down concert setting, but the chaotic nature of the musical fist-fighting between the three agents comes across well in a stand-up setting.

The staging of the performance is with a screen displaying prompts by the algorithmic conductor, the human performers standing in front of the screen interacting with all three -- dramaturgic instructions, each other, and the non-human performer (musical agent).

The expected time of playing for this performance is 15 minutes.

### 4. MEDIA LINK(S)

- Audio 1:  
<https://drive.google.com/drive/folders/18YZMRG7XzCEVJ-vaNIWs3hy9dDIuIEBk?usp=sharing>

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### ETHICAL STANDARDS

This work involves no participants beyond the authors, and no animals. The early financing of this project is mentioned in the acknowledgements. The authors currently do not have funding from any conflicting agency.

### REFERENCES

- [1] Thelle, N. J. W., and Wærstad, B.I., 2023. "Co-Creative Spaces: The Machine as a Collaborator." In Proceedings of New Interfaces for Musical Expression. Article number 48 (pages unnumbered).